1. **Level of the project:** Master's
2. **Name of primary supervisor:** Prof Kshitij Thorat
3. **Institution of supervisor:** University of Pretoria
4. **Name of co-supervisor** (if appropriate): Dr Etienne Bonnassieux
5. **Institution of co-supervisor** (if appropriate): IAA-CSIC, Granada, Spain
6. **Contact details of supervisor and co-supervisor:** kshitijthorat.astro@gmail.com, etienne@iaa.csic.es
7. **Project title**: **Diffuse environments of Bent-tailed radio galaxies**
8. **Description of project**:

Aims: Radio galaxies, perhaps the most spectacular examples of Active Galactic Nuclei (AGN), come in a wide variety of shapes and forms. Their shapes depend not only on the ongoing accretion activity going on at the nucleus but also their interactions with their diffuse ambient environments, making radio galaxies very useful probes of their environs. A good example of this is a bent-tailed radio galaxy which may attain its form of swept-back lobes through interaction with the ambient Intergalactic Medium, typically the Intra-cluster medium.

This project aims to utilise publicly available large multiwavelength datasets to determine the physical properties of the diffuse environments of bent-tailed radio galaxies.

Fig 1: A bent-tailed galaxy seen in radio continuum in L-band (taken from the MGCLS survey)
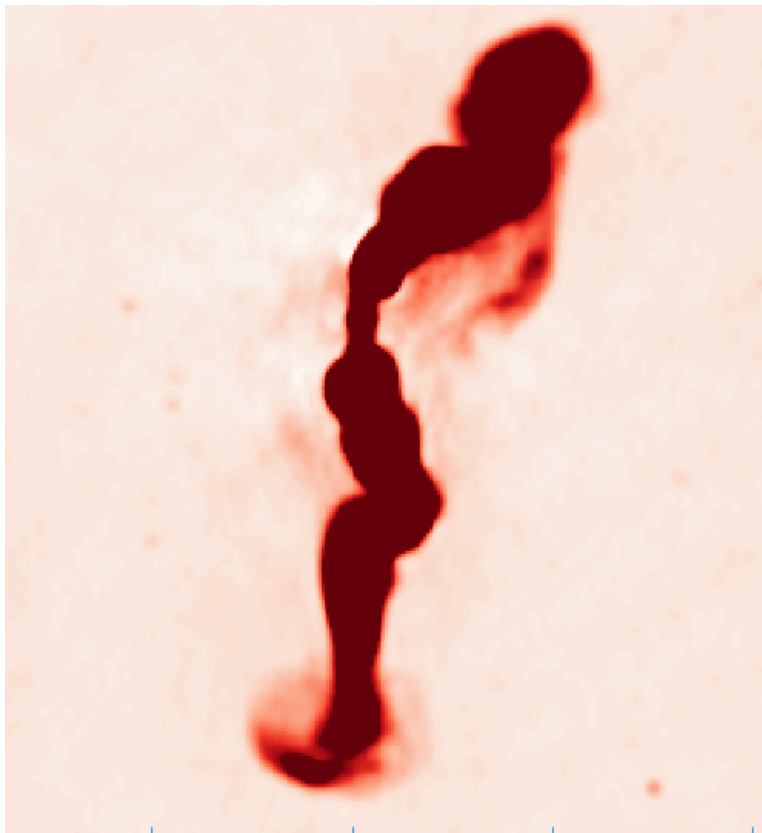
The project timeline is envisaged as:

i) Literature review : first two months
ii) Familiarisation with the data: next two months
iii) Data visualisation and analysis: following six months
iv) Thesis writing : three months

Encompassing in total a timespan of a year as required for a NASSP MSc project. It is expected that at least one publication will result from the study.

Skills required: Python, familiarity with basic extragalactic astronomy and with astronomical images and datasets.